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INDUSTRIAL EDUCATION IN AMERICA

Industrial and High Art Education in the United States. Part I. "Drawing in Public Schools." By J. Edwards Clarke, A.M. (Washington: *Government Printing* Office, 1885.)

CHANGES required in school training, in the substance as well as in the method of it, are now felt to be a vital question to the political economist and the law-maker, as well as to the moralist. While the old apprenticeship system was in its vigour, the youth was taught at school the three R's and whatever other branches of a liberal education his parents could afford, and for seven years after that technical instruction was given to him in all the branches of the trade he had chosen by his master, the best teacher that could be found in those days. But under the influence of machinery that system has completely collapsed, and the feeling is rising everywhere that something must be done at school to replace instruction given of old by the master. Theorists insist that nothing short of a technical school, where each trade is taught from beginning to end, will sufficiently replace the care and the interest of the latter, and they hold up the Russian Strogonoff school as an example of their being taught in this complete way and triumphantly compare its work with that of the best manufacturing countries. They urge that in a system of public education like that of the United States it is a serious fault that, while a classical or professional education is provided free for the youth who desires it, technical instruction is denied to a far larger body of mechanics who have as perfect a claim to the education they require. In Stockholm the experiment of every elementary school having a carpenter's and joiner's shop attached is being tried, but the impracticability of carrying on in every town schools where instruction in each art can be efficiently given to the labouring classes has left the teaching of theorists little else but theory, and a technical school giving instruction in the one or two principal trades of a district is all that can be looked for.

One item of education, however, has made its way in most European countries, as being a help to all technical work, encouraging observation and correctness, and enabling such observation to be registered and expressed. It is here asserted to be a qualification for nine-tenths of the occupations into which all labour is divided, and is welcomed by the most advanced supporters of technical schools as the first step. Reading, writing, arithmetic, and drawing are now to be the four fundamental studies. A knowledge of it is essential in many of the studies in the schools of science, and especially useful to all engaged in the profession of teaching. More doubtful assertions are that like other technical teaching it does not necessarily interfere with or hinder other work, and that it positively assists in learning to write; this latter having the authority of the London School Board, as well as that of an American writer quoted in this volume. The rise in value also in the labour-market of each mechanic who has the power to draw or even understand a drawing of a technical arrangement is often insisted upon; but when such an accomplishment has become common to all, and therefore gives its possessor no superiority, this is rather doubtful, though the raising of a whole class to the capacities of artists and engineers will very likely add to republican equality.

While England has for years encouraged the teaching of drawing, and, the year before last, made it a part of the education of all boys in elementary schools, in the United States a sense of its importance has been only slowly making its way. Recently, however, the Senate requested all information on the subject of industrial and high art education in the United States to be laid before it by the Education Bureau. This work was committed to Mr. J. Edwards Clarke, already the author of a Circular on the subject published in 1874, which excited so much interest and drew so much further information that it is reproduced at p. 487 of this volume, having now, the author claims, some little historical interest, the meagre list which it contains of art institutions in the country at that date contrasting with the changes already brought about. The Bureau had already decided to prepare a much more comprehensive work, which should combine a history of the earliest efforts of writers of all views in all parts of the United States and in England; an account of their failures and successes, and especially of the Massachusetts success; with information as to planning schools of high art and public art-museums; lists of art-publications and materials; extracts from foreign official reports as well as from other foreign material. This, even before the Senate's Commission enlarged its scope, was sufficient to make a tolerably voluminous work. But a source of disorder and much repetition has been a series of delays in its publication. It was complete for publication in 1877, and while in one article of that date criticising the few artistic buildings which New York could show in 1875, it rejoices in a later one at the improvement there in 1883, and the artistic taste displayed by its architects; it was ready again in 1880; corrected again for 1882, and statistical tables down to 1881-82 printed, which again it is promised shall be supplemented by tables reaching down to June 30, 1885, at the end of the fourth volume to which this work is to reach. It was printed in 1885, and inserts publications of that year, yet quotes from an "unpublished" report of the National Educational Association held in 1884; and it is still only promised to the public at this year's end. Since this one volume extends to 1100 pages of, for the most part, small-printed matter, the whole work may be looked upon as an encyclopædia of information bearing upon the drawing question, of value chiefly to two classes of men, viz. school teachers, who will find nothing wanting, and earnest advancers of art education. For unless the general public in America be far different from our own they will not be *led* into the study of the subject by such a publication as this, and in its present form it must quite fail of the general effect upon them aspired to on p. xxx. The fourteen papers by the compiler with which the work opens would be appropriate for rousing attention if dispersed over the country in the most handy form; in their present position their inflated and impetuous style is inconsistent with the idea of exactness to be expected in this class of publication.

As late as 1876 the introduction of drawing into the public schools was looked upon as a novel project in the United States; for while Mr. Clarke considers that England has spent "an enormous aggregate of money in the work" the Americans, so profuse in other educational expenditure, have been strangely apathetic in the matter. One explanation given is that during the Middle Ages the Church and the aristocracy were the great patrons of high art, and this bred an instinctive dislike to its pursuit in the minds of New England emigrants. But besides the delineation of Nature and of all her forms of beauty, the minister of cultivated wealth and luxury, there is another branch of drawing of the highest importance to nearly every mechanic in these days, viz. geometrical drawing, the foundation of all industrial art, leading up to the elaborate perspective of a complicated machine. Both branches are of course required in many manufactures. Which shall be pursued with most energy in any town must depend upon its staple trades; in some few businesses, as in watches and woven fabrics, the mechanical and the ornamental have about equal claims. The same idea, that drawing meant ornamental art alone, and that its chief results would be the sort of things that accomplished young ladies bring home after a few terms of learning drawing, established itself in the minds of the ratepayers. To meet this the general tone of quotations through this report is that "industrial drawing is of the most practical nature, and has nothing to do with pictures of old ruins, landscapes, &c." Yet elsewhere Mr. Clarke is most contemptuous towards any who wish to confine the drawing taught in any school to "that part of it directly related to industrial interests"; and the teaching of the self-willed Haydon, of whom he gives a long account as the victim of cruel and ignorant persecution of "aristocratic connoisseurs" but as an apostle of art to the common people, is just as confidently quoted with no qualification. Haydon's teaching is that the study of the nude human figure is the best qualification of an artist for any manufacturing business, and every one holding a different opinion is dismissed by Mr. Clarke with contempt. This necessity for high art teaching is a hard doctrine, and certainly discouraging to those who hope to qualify a majority of the working classes for artistic producers or intelligent machinists. Perhaps it only resolves itself into the explanation given on p. 482 by Mr. Sparkes, and supported also by the quotation from Mr. William Morris, that the greater includes the less, and that if an artist is well able to delineate the "subtle lines" of the human figure in a complex attitude, he is not likely to fail in working up a lily or a rose; and this is only in accordance with Mr. Stetson's teaching quoted on p. 649. Still a superiority of French over German art designs is attributed to the former making the human figure their first study and then proceeding to flowers and ornament, while the latter take what seems to us the more natural course of the reverse order.

In 1870 the State of Massachusetts after inviting various experts to express their opinions (here reported) decided that drawing should be taught in all its schools. The larger part of this bulky volume is directly or indirectly the history of the call of Mr. Walter Smith, head master of the School of Art at Leeds, who was recommended by Sir Henry Cole to be intrusted with the management of the whole matter. There are 120 closely-printed pages devoted to his work in Massachusetts as Art Director from 1871. Every part of the subject was under his guidance, and to impress upon the reader the amount of work entailed upon him an additional chapter is added to describe the unsatisfactory state of things in Boston before his arrival. The whole of his first report for 1872 is given, and long extracts from each yearly report on normal schools and every other department afterwards. Plans of instruction for evening classes which he superintended, as well as of teaching in school hours, are quoted in full. To advance his subject he took to the principal towns in the State a travelling museum of models and examples for study, many supplied from South Kensington. In one appendix are given copious extracts from an address delivered by him to the Pennsylvania Legislature in 1877 on behalf of the Museum and School of Industrial Art of that State; in another practical papers on drawing, chiefly by him, of value of course to managers who have just succeeded in introducing the teaching of drawing; three lectures delivered respectively to the teachers of the three grades of elementary, grammar, and high schools; followed by extracts from similar addresses delivered, after his connection with Massachusetts had ceased, at Montreal and Quebec.

The chief difficulty of course in setting such a work going was the scarcity of teachers, and this remained a difficulty up to the last. A paper accordingly by General Francis A. Walker, describing drawing as the foundation of all technical education, urges that the normal school should in truth precede, not follow, the elementary school. Another difficulty which an Association of Teachers found, and which showed the state of things at that time, was that there was so great a scarcity of art-books in the country that the Association set itself to encourage the reprinting, translation, and publication of such books.

On the whole, the energy inspired and the method introduced were so successful in Massachusetts that we are told that its history will form a lasting monument alike to the genius of Walter Smith and to the far-reaching foresight of the school authorities and State Legislature in 1872–73.

Appendix D is an account of the differences which rose between the Committee of Education in Massachusetts and Prof. W. Smith. The latter has now returned to England and taken the head mastership of the Art Department of the Technical College at Bradford Great regrets are expressed at the, to them, untimely event of his resignation, and it is lamented that he should return from leading the industrial education of a continent to an English provincial college! The work now (1883) is reported as in too few hands, though still progressing from the impetus it had received.

No other States have gone into art education with the energy which Massachusetts displayed in 1872. Two others only, New York and Maine, have required that it shall be taught in all schools. In the latter it is urged as the more important, because every natural feature of the country points it out as the seat of manufactures and not of agriculture. But neither Maine nor New York has provided a normal school for the training of teachers. In various other States, however, individual cities have adopted drawing and made it a regular part of the course

Syracuse, in the State of New York, can boast a priority in this good work even over Boston.

Though speaking everywhere most bitterly of England,—an Americanism so out of date now that happily it is more comical than irritating, especially when he goes so far as to call the great works on political economy which have made their way over the whole civilised world "emissaries of English policy which she has succeeded in introducing,"—the writer everywhere holds up England as an example in art education. The whole of the work is credited to Sir Henry Cole and South Kensington, although there were twenty Government-supported Schools of Design in England in 1847. Still the writer cannot resist the sneer that there would have been no art-teaching in England if a Royal Prince had not urged it! But many times over he relates how visitors were struck with the clumsy inartistic style of all English art-work at the Exhibition of 1851 compared with that of many foreign nations, and the good result of an energetic and most successful effort by the nation to remedy it is constantly urged as appearing at the Philadelphia Exposition of 1876. There the Americans found themselves as far behind England as England had been behind other European countries in 1851, through the inartistic ignorance of their manufacturing classes. Many practical lessons and suggestions were there supplied to them, and much of this volume is a record of their influence. Appendix E gives a lengthy paper by Mr. Stetson reviewing the work exhibited there by all the various foreign nations and by each of the American towns, and it records the influence of this Exhibition upon industrial art. We should like to have heard something, however, of the result of the New Orleans Exhibition, no report of which has reached us, although so much was promised.

While anxious by making drawing general to "utilise all the pleasure which a slate and pencil give a child," Mr. Clarke's unqualified love of liberty makes him object to infringing on even a child's freedom, and actually trusts to the extra interest that many gutter children would take in gaining technical skill to render compulsion unnecessary. He urges with good reason that nowhere would artistic skill be so well rewarded as in the United States during its present rapid rise in wealth as well as in population, and that skilled art labour is far more valuable than the labour bestowed upon plainer, rougher work. He does not however, in his promises held forth to all alike who learn to draw, appear to realise the division of labour between the designer and the numerous mechanics who carry out the artist's ideas on the machine, but seems to look upon all artistic work as carried out single-handed from the design to the article ready for sale. No doubt it is here, as General Walker (already quoted) remarks, that there are boys that have genius in their eyes and fingers instead of a memory and quickness at book-training, who would profit by artistic training. Many such specially gifted artists have already made their mark in America both in architecture and in engraving; the standard of magazine illustrations having been raised even in England by competition with American productions. A larger class whose labour art-education makes valuable are women who are anxious to secure to themselves an independence. They are the principal teachers of drawing in all its branches, and find an excellent outlet for talent. Many artistic trades are also now carried on successfully by them; an account is especially given in Appendix E of the wood-carving taught at a women's school in Cincinnati introduced there by an English workman of the name of Fry. Ladies there, among others, make it a pursuit with great success.

Besides other papers incidentally referred to in our above remarks, various writings of considerable length and of dates from 1845 to 1884 are given in Appendixes A, C, and E, all urging the importance of art education, and instructing those engaged in teaching it.

Appendix F consists of 70 closely-printed pages giving an account of South Kensington, its officials, history, Art Training School, Museum, Art Library, art examples, books, and casts; with the reports for 1882 and 1884, and copious extracts from the Art Directory to show in detail the conditions and regulations under which "aid" is granted in England. Some of the quotations in this appendix are taken from the Directory of 1885. Mr. Clarke assures his countrymen that "in its appointments, and influence on art industrial education, South Kensington Museum stands without a rival. It is a wonderful centre of educational energy." "Other countries, even France, are giving it their official indorsement by modifying their art industrial instruction as rapidly as may be, and bringing it more into harmony with that of the English."

The final Appendix, H, claims to be a fitting end to this volume, and a foreshadowing of the contents of the future volumes. It is Lord Reay's address to the International Educational Conference at the Health Exhibition in 1884.

The printing of this volume is far from so correct as might be expected in a Government publication on Education.

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OUR BOOK SHELF

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WE are glad to note that the successive parts now appear with praiseworthy regularity, and the arrival of our number can be predicted to a very close order of approximation. The volume opens with a continuation of Prof. Sylvester's lectures at Oxford on "The Theory of Reciprocants." The story is resumed with the eleventh and proceeds to the close of the sixteenth lecture. For the cumbrous terminology "projective reciprocants" or "differential invariants" the lecturer now suggests "principiants." From Lecture xiv. the abstract is devoted to the theory of pure and projective reciprocants, or rather principiants, and here we are introduced to the existence and properties of the protomorphs of invariants and reciprocants with which Mr. L. J. Rogers, one of the lecturer's audience, has made us elsewhere familiar. For an account of Dr. Story's new method in analytic geometry, we refer our readers to the author's own description. Dr. F. N Cole gives a full review in Klein's Ikosaeder of what that eminent mathematician has done in his "Vorlesungen über das Ikosaeder und die Auflösung der Gleichungen vom fünften Grade" (1884), and in his "VergleichendeBetrachtungen über neuere geometrische Forschungen" (1872). In Prof. Greenhill's paper on wave-motion in hydrodynamics the writer states that "one of the most important applications of the theory of hydrodynamics is to the question of the motion of waves under gravity and other causes," and his object is "to collect together the chief results hitherto obtained, and to give also a general connected account of the mathematical theory, at the same time attempting to develop it in some directions."